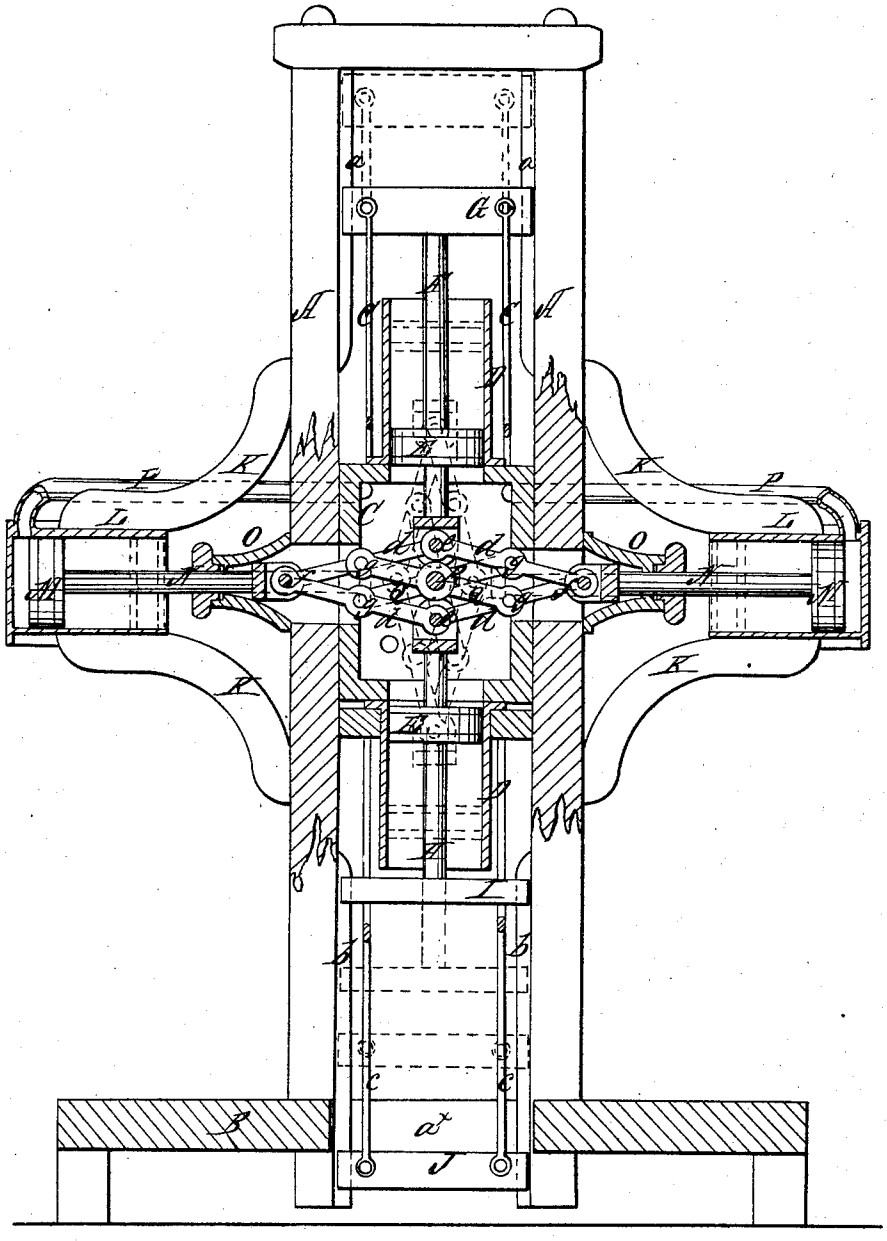
T. J. DE YAMPERT.

STEAM COTTON PRESS.

No. 18,502 Patented Oct. 27, 1857.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

T. J. DE YAMPERT, OF MOBILE, ALABAMA.

IMPROVEMENT IN STEAM COTTON-PRESSES.

Specification forming part of Letters Patent No. **18,502**, dated October 27, 1857.

To all whom it may concern:

Be it known that I, T. J. DE YAMPERT, of the city and county of Mobile, and State of Alabama, have invented a new and Improved Steam-Press for Compressing Cotton, Hay, and other Substances for Baling; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, said drawing being a vertical section of the steam-chest and cylinders secured in a proper framing, the working parts not being bis ected.

This invention consists in the arrangement and combination of four piston-rods, which unitedly operate the followers of the press, with a central axis and cross-levers located within the steam-chest, as hereinafter described.

The object of this invention is to obtain a powerful press in a very compact form, and one that may be readily managed or operated and applied with the greatest facility to the work to which it is adapted.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A A represent two uprights, which are secured to a proper base, B; and C represents a steam-chest, which is permanently secured between the two uprights A A. The steam-chest C may be of rectangular form, and is placed at a point about midway between the top and bottom of the uprights. The steam-chest, as well as the uprights, is constructed of cast-iron, and the lower parts of the uprights may be braced in any proper manner.

To the upper and lower ends of the steam-chest C a steam-cylinder, D, is secured. These cylinders D D communicate with the steam-chest C, and their outer ends are open. Within each cylinder D a piston, E, is fitted, and the rod F of the piston of the upper cylinder is connected to a cross-head, G, which works between guides *a a*, attached to the inner sides of uprights A A at their upper ends. The piston-rod H of the lower cylinder D is attached to a platen, I, which works between guides *b b*, attached to the inner sides of the uprights A A at their lower parts.

J is a platen placed underneath the platen I and working between the same guides, *b b*. This platen J is connected to the cross-head G by rods *c*, the central portions of which are represented as being broken away. The platen J works or is allowed to pass through a recess or opening, $a^{\times}$, in the bed B.

To each upright A two curved arms, K K, are attached, and between the arms of each upright a steam-cylinder, L, is secured. These cylinders L are placed in a horizontal position and in line with each other, the arms K being of such a form or so arranged that the cylinders may be fitted securely between them.

Within each cylinder L a piston, M, is fitted, and the rods N N of said pistons pass through stuffing-boxes O O into the steam-chest C. The outer ends of the cylinders L L are closed, and pipes P P connect the outer ends of the cylinders L L with the steam-chest C, the pipes P communicating with the cylinders L beyond or at the outer sides of the pistons M M. The inner ends of the piston-rods F H of the cylinders D D are each connected to the toggle-levers *d d*, the rods F H being connected to the joints or fulcrum-pins *e* of said levers. There is a pair of levers, *d d*, attached to each of the rods F H, and the outer ends of the levers of each pair are connected by fulcrum-pins *f*, and the inner ends of the piston-rods N N are connected to the fulcrum-pins *f*. It will be seen, therefore, that the inner ends of the four piston-rods are connected to the four levers *d d d d*.

Q Q are two cross-levers, the ends of which are connected by pivots *g* to the center of the levers *d*. The levers Q Q at their point of intersection are fitted and work upon an axis, R, which is permanently secured in the steam-chest C. The steam-cylinders are of course constructed of cast-iron, and the platens may be constructed of metal or wood.

The operation is as follows: Suppose the pistons E E to be at the inner ends of their cylinders D D, and the pistons M M at the outer ends of their cylinders L L, as shown in black. The two platens I J will then be at the greatest distance apart, and the cotton or other article to be compressed is placed upon the lower platen, J, and the steam is admitted into the steam-chest C, the steam acting against the pistons E E and moving them toward the outer ends of their cylinders, the steam also passing through the pipes P P and acting against the outer sides of the pistons M M,

moving them toward the inner ends of their cylinders, the steam acting simultaneously against the four pistons, and the power of the steam exerted against the pistons of the four cylinders is, through the medium of the toggle and cross-levers *d* Q and the rods *c*, which connect the lower platen, J, with the cross-head G, transmitted to the two platens I J, which in consequence are made to approach each other, compressing the substance or article between them. When the article is fully compressed, it is bound in the usual manner, and the steam, by opening a proper valve in the steam-chest, is allowed to escape therefrom, the exhaustion of the steam creating or producing a vacuum in the steam-chest C, and thereby causing the pistons to be moved back to their original position by atmospheric pressure, assisted by the weight of the cross-head G and platen J.

From the above description of parts it will be seen that the power of four steam-cylinders is applied to the two platens, and a very powerful press is obtained within a very small compass.

The presses may be placed either in a vertical or horizontal position, they may be cheaply constructed, there are no parts liable to get out of repair, and they may be placed advantageously on steamboats which convey cotton from different points to the shipping or central port, and the cumbrous bales of the planters may be compressed while being thus conveyed, the presses being operated by the steam from the boilers of the boats. The handling of the cotton once, and in most cases twice, would be saved thereby, and also a considerable saving would be effected in fuel.

I do not claim the toggle-levers *d* and cross-levers Q Q separately or in themselves considered, for they have been previously used and applied in various ways to presses. Nor do I claim, broadly, the application of steam-power to presses as a motor for presses. An example may be seen in S. G. Cabbell's and A. Seely's rejected application, 1854. Nor do I claim, broadly, the union of the upper and lower platens of presses by means of toggle-links. An example may be seen in Aaron Hale's patent, June 26, 1832; but,

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The arrangement and combination of four piston-rods, F H N N, which unitedly operate the followers of the press, with a central axis, R, and cross-levers Q *d*, located within the steam-chest C, as herein described.

T. J. DE YAMPERT.

Witnesses:
WM. TUSCH,
J. W. COOMBS.